This guidance is intended for annual reporters only. Ozone-season only reporters should refer to 40 CFR 75.74. Also, this guidance is not intended to replace 40 CFR 75, EDR instructions, or Policy Manual

Definitions:

- EDR – Electronic data report
- A QA operating quarter is a calendar quarter in which there are at least 168 unit operating hours (as defined below) or, for a common stack or bypass stack, a calendar quarter in which there are at least 168 stack operating hours (as defined below).
- A non-QA operating quarter is a calendar quarter in which there are fewer than 168 unit or stack operating hours.
- A unit operating hour is a clock hour during which the unit combusts any fuel, either for part of the hour or for the entire hour.
- A stack operating hour is a clock hour during which flue gases flow through a particular stack (either for the entire hour or for part of the hour) while the associated unit(s) are combusting fuel
- A unit operating quarter is a calendar quarter in which the unit combusts any fuel.
- A non-operating quarter is a calendar quarter in which the unit does not combust any fuel.

1. Linearity Checks (exemptions & grace periods)

- Part 75 requires a linearity check of each gas monitoring system in each QA operating quarter, for on-going quality-assurance. This requirement becomes effective in the calendar quarter immediately following the quarter in which the initial certification tests of the monitoring system are completed. There is one exception to this. For SO2 and NOx monitors with a span value of 30 ppm or less, linearity checks are not required---however, note that if the NOx monitor with a span $\leq$ 30 ppm is part of a NOx-diluent monitoring system, linearity checks of the diluent gas monitor are still required.

  Example: Certification tests of a NOx-diluent monitoring system are completed in 2nd quarter, 2005. The high and low span values of the NOx monitor are 200 ppm and 50 ppm, respectively---therefore, the first QA linearity checks of this system are due in 3rd quarter, 2005, provided that it is a QA operating quarter.

- If you report emissions data on a year-round basis, you may claim limited exemptions from linearity checks for non-QA operating quarters. For dual-range analyzers, you may also claim limited linearity check exemptions for quarters in which you do not use one of the ranges at all.

Linearity check exemptions for a particular monitor (or range) may only be claimed for three consecutive calendar quarters following the quarter in which the last linearity check was performed. If the current quarter is the fourth calendar quarter since the quarter of the last linearity test, a linearity test must be completed either within the current quarter or within a 168 unit (or stack) operating hour grace period following the end of the current quarter.

- If you elect to claim a linearity check exemption for a particular quarter, submit record type (RT) 698 in the EDR for the quarter for which the exemption is claimed, unless that quarter is a non-operating quarter (i.e. has zero operating hours), in which case, submit the RT 698 claim in the EDR for the next unit operating quarter.

  Report the appropriate "basis-for-exemption" code in each RT 698. Report code "1" if the linearity exemption is for a non-QA operating quarter. Report code "2" if the exemption is for a monitor range that was not used during the quarter.

- Whenever a linearity check is not completed in the quarter in which it is due, the test must be performed during a grace period of 168 unit (or stack) operating hours following the end of the quarter in which the test was due. If the test is not completed by the end of the grace period, data from the monitor become invalid until a linearity check is passed.

  Note that a grace period linearity check is considered to be a "make-up" test for a previous quarter and may not be used to satisfy the linearity check requirement for the quarter in which the grace period test is performed.

- If you perform a linearity check within a grace period, you must submit a grace period claim, i.e., EDR record type 699. When a grace period begins and ends in a single calendar quarter, submit RT 699 in the EDR for the quarter containing the grace period. For example, if the linearity test is due by December 31, 2004, but is actually completed in a grace period in the first quarter of 2005, submit RT 699 in the first quarter, 2005 quarterly report.

  When a grace period spans two or more calendar quarters (e.g., for an infrequently-operated unit), submit RTs 699 for each operating quarter, starting with the quarter in which the grace period begins (i.e., the first unit operating quarter after the linearity check deadline) and ending either with the quarter in which the grace period expires or the quarter in which the required linearity check is completed, whichever occurs first. If any non-operating quarters occur during this time span, do not report RT 699 for those quarters (no data validation claim is required for a non-operating quarter).

Note that when a grace period expires in the reporting quarter without the required linearity check having been completed, the RT 699 serves as a claim of data validation during the grace period.

2. RATAs (deadline extensions & grace periods)

- Part 75 requires a quality-assurance RATA of each CEMS to be performed either semiannually or annually, depending upon the relative accuracy (RA) achieved in the previous test. For example, if, for the RATA of a particular NOx monitoring system, the RA is > 7.5% but ≤ 10.0%, the RATA frequency is semiannual and the next RATA is due within two calendar quarters (unless allowable deadline extensions are claimed---see below). If the RA is ≤ 7.5%, the RATA frequency is annual and the next RATA is due within four calendar quarters (unless allowable deadline extensions are claimed).

  However, note that Part 75 has alternate RA specifications for low-emitting units. Therefore, for a low-emitter, even if a monitoring system cannot achieve a RA of 7.5% or less, the system may still be able to qualify for an annual RATA frequency by the alternate specification. The main and alternate RA specifications are summarized in Figure 2 in Appendix B of Part 75.

  The requirement to perform periodic quality-assurance RATAs becomes effective in the calendar quarter immediately following the quarter in which the initial certification tests of a monitoring system are completed. In other words, begin counting calendar quarters toward the RATA deadline in the quarter after initial certification.

  Example: The certification tests of a NOx monitoring system are completed in the 2nd quarter of 2005. The %RA obtained in the certification RATA is 5.0%. Since this %RA is < 7.5%, the RATA frequency is annual, and the projected deadline for the next RATA is the end of the fourth calendar quarter following the quarter of initial certification, i.e., June 30, 2006. The actual RATA deadline may be later than this, however, if deadline extensions are claimed (see below).

- If you report emissions data on a year-round basis, limited extensions of the projected RATA deadline may be claimed, one quarter at a time, for non-QA operating quarters. However, the RATA deadline may not be extended beyond the end of the eighth calendar quarter following the quarter in which the last RATA was performed. If the current quarter is the eighth calendar quarter since the quarter of the last RATA, a RATA must either be completed within the current quarter or within a 720 unit (or stack) operating hour grace period following the end of the current quarter.

- If you elect to claim a one-quarter extension of a RATA deadline for a non-QA operating quarter, submit EDR record type 697, with a "type of extension" code of "1". Submit the RT 697 claim in the EDR for the non-QA operating quarter in which the monitoring system qualifies for the extension, unless the unit does not operate at all in that quarter---in which case, submit the RT 697 in the EDR for the next unit operating quarter.

  Example: From the previous example above, the initial RATA of the NOx monitoring system was done in the 2nd quarter of 2005 and the projected deadline for the next RATA is June 30, 2006. If the 3rd and 4th quarters of 2005 and the 1st and 2nd quarters of 2006 are all non-QA operating quarters, the RATA deadline may be extended, one quarter at a time, by submitting RT 697 in the EDR for each of the four non-QA operating quarters. These four RTs 697 will extend the projected test deadline, successively, to 9/30/06, 12/31/06, 3/31/07 and 6/30/07. The deadline may not be extended beyond 6/30/07, however, since the 2nd quarter of 2007 is 8 calendar quarters from the quarter of the last RATA.

- When a RATA is not completed by the deadline, it must be done within a grace period of 720 unit (or stack) operating hours following the end of the quarter in which the test was due, otherwise data from the monitoring system become invalid until a RATA is passed. If you elect to use a grace period, submit a grace period claim (RT 699).

  Note that a grace period RATA is considered to be a "make-up" test, and does not allow you to re-set your RATA schedule. For example, if a RATA that was due in the 4th quarter of 2004 is performed within a grace period in the 1st quarter of 2005, the projected deadline for the next RATA is reckoned from the 4th quarter of 2004, not from the 1st quarter of 2005.

  If the grace period begins and ends in a single calendar quarter, submit a RT 699 in the EDR for the quarter containing the grace period. For example, if the RATA is due by December 31, 2004, but is actually completed in a grace period in the first quarter of 2005, submit RT 699 in the first quarter 2005 EDR.

  When a grace period spans two or more calendar quarters (e.g., for an infrequently-operated unit), submit RTs 699 in each operating quarter, starting with the quarter in which the grace period begins (i.e., the first operating quarter after the RATA deadline) and ending either with the quarter in which the grace period expires or the quarter in which the required RATA is completed, whichever occurs first. If any non-operating quarters occur during this time span, do not report RT 699 for those quarters (no data validation claim is required for a non-operating quarter).

Note that when a grace period expires in the reporting quarter without the required RATA having been completed, the RT 699 serves as a claim of data validation during the grace period.

3. Fuel Flow meter calibrations

Definition

A fuel flowmeter QA operating quarter is a calendar quarter in which the type of fuel combusted by a particular fuel flowmeter is combusted for 168 hours or more.

- Orifice, nozzle, and venturi-type fuel flowmeters may be certified by design, if the criteria of American Gas Association (AGA) Report No. 3 are met. In addition to meeting the design criteria, the transmitters (temperature, pressure and differential pressure) must be calibrated using NIST-traceable standards. Following initial certification, transmitter calibration is required once every four calendar quarters and a primary element inspection is required once every 12 calendar quarters (unless allowable deadline extensions are claimed---see below). Transmitter calibration results are reported in EDR record type 628 and visual inspection results are reported in RT 624.

- For orifice, nozzle, and venturi-type flowmeters that cannot meet AGA design criteria and for all other types of fuel flowmeters, an initial accuracy test is required, using one of the methods listed in Part 75, Appendix D, section 2.1.5.1. Following initial certification, the accuracy test must be repeated once every four calendar quarters (unless allowable deadline extensions are claimed---see below). Fuel flowmeter accuracy test results are reported in EDR record type 627.

- Part 75 allows you to extend the fuel flowmeter accuracy test deadline by one quarter, up to a maximum of 20 calendar quarters from the quarter of the last test, using EDR record type 696 to make the claims, for the following reasons:

    - For any quarter that does not meet the definition of a "fuel flowmeter QA operating quarter". This option is most advantageous for units that seldom operate or for fuels that are seldom burned; or

    - For each quarter in which the optional fuel flow-to-load ratio or gross heat rate (GHR) test described in section 2.1.7 of Part 75, Appendix D is performed and passed. This option is advantageous for frequently-operated units or for fuels that are frequently combusted. (See below

under “Fuel Flow to Load Ratio or Gross Heat Rate Test” for a further discussion of the fuel flow-to-load ratio test).

- Accuracy test deadlines may only be extended one quarter at a time. Therefore, you must submit a RT 696 extension claim for every calendar quarter, including non-operating quarters, for as long as the deadline continues to be extended. Note that if you are using the optional fuel flow-to-load ratio test to extend the accuracy test deadline, you must submit RTs 629 and 630 in addition to RT 696.

- For non-operating quarters (i.e., zero operating hours), do not submit any extension claims, fuel flow-to-load test results, or flowmeter accuracy test results in the EDR. Rather, submit these records in the EDR for the next quarter in which the unit operates.

4. Preventive maintenance, replacing parts or replacing analyzers

- Diagnostic testing and in some instances. certification or recertification testing, is required when repairs, component replacements, or equipment changes are made that may affect the accuracy of the monitoring systems. Please see Questions 13.21 and 16.14 through 16.16 in the Part 75 Emissions Monitoring Policy Manual, for details.

- Any time that a preventive maintenance event occurs, a part is replaced, or an analyzer is replaced, the action should be recorded in the maintenance log and this log should be made available during field audits and inspections.

- Use EDR record type 556 to report recertification, and maintenance events and the status of any required certification, recertification, or diagnostic testing. RT 556 describes the particular certification, recertification, or maintenance event, indicates which quality assurance tests are required, and (if applicable) defines any time period(s) during which the monitoring system was unable to provide quality-assured data. Data are considered quality-assured when all of the required QA tests have been successfully completed.

  RT 556 also indicates whether "conditional" data validation” was used (see section 75.20(b)(3)), prior to completing all of the required certification, recertification or diagnostic testing. The conditionally valid data status begins when a “probationary” calibration error test is passed. If the required QA tests are then completed within the time allotted by the rule, with no failures, the conditionally valid data are considered to be quality-assured, back to the hour of completion of the probationary calibration error test.

5. Off-line calibrations

- Question 10.13 in the Part 75 Emissions Monitoring Policy Manual contains a detailed discussion of the daily calibration error test, including off-line calibrations. The off-line calibration option in section 2.1.1.2 of Part 75, Appendix B is intended principally for peaking units that are brought into service on an as-needed basis. If the monitors on these units can pass the off-line calibration demonstration, then off-line calibrations may be used on a limited basis to validate emissions data. If you intend to use off-line calibrations for data validation, the two most important things to remember are: (1) the "window" of data validation for a successful off-line calibration extends for 26 clock hours from the hour in which it is performed, and then it expires; and (2) no more than 26 consecutive unit operating hours of data may be validated using off-line calibrations. Once the 26 operating hour limit is reached, an on-line calibration must be performed and passed, otherwise data from the monitor become invalid.

6. Requirements for Fuel Heating values

- Table D-4 in section 2.2 of Appendix D contains the requirements for oil GCV sampling. Basically, the GCV is sampled at the same frequency as the sulfur content. There are 4 options for fuel oil sampling in section 2.2 of Appendix D: (1) daily sampling; (2) flow-proportional sampling (up to a 1-week composite sample); (3) sampling after each addition to the storage tank; or (4) sampling from each delivery

- Table D-5 in section 2.3 of Appendix D contains the sampling requirements for gas GCV. For natural gas, the GCV must be sampled monthly.

- The required sampling may be done by the affected source, by an independent laboratory, or by the supplier of the fuel.

- Section 2.3.7 of Appendix D explains in detail when to apply the fuel sampling results, for the purposes of Part 75 reporting. Basically, it depends on which option you have selected from column 3 of Table D-4 or D-5, i.e., "Value Used in Calculations".

7. Normal Load determination for RATAs

Section 6.5.2.1 of Part 75, Appendix A explains how to define the "range of operation" for each affected unit. The range of operation extends from the "minimum safe, stable load" to the "maximum sustainable load". For combustion turbines, there is supplementary guidance on how to report unit load in Questions 18.4 and 18.7 of the Part 75 Emissions Monitoring Policy Manual.

Once the range of operation has been defined, it is divided into 3 load bands (low, mid and high). The first 30% of the range is “low” load, the next 30% is “mid” load, and the remainder of the range is “high” load. Then, except for peaking units, a determination of the normal load level is required. The RATAs of gas monitoring systems must be done at normal load. Part 75 allows you to designate two normal load levels. This provides flexibility, since the RATAs may be done at either load level.

Below are paragraphs (c) and (d) from section 6.5.2.1 of Appendix A, describing how to determine the normal load level.

- **Appendix A, sections 6.5.2.1 (c) and (d)**

  - (c). The owner or operator shall identify, for each affected unit or common stack **(except for peaking units),** the "normal" load level or levels (low, mid or high),based on the operating history of the unit(s). To identify the normal load level(s), the owner or operator shall, at a minimum, determine the relative number of operating hours at each of the three load levels, low, mid and high over the past four representative operating quarters. The owner or operator shall determine, to the nearest 0.1 percent, the percentage of the time that each load level (low, mid, high) has been used during that time period. A summary of the data used for this determination and the calculated results shall be kept on-site in a format suitable for inspection. For new units or newly-affected units, the data analysis in this paragraph may be based on fewer than four quarters of data if fewer than four representative quarters of historical load data are available. Or, if no historical load data are available, the owner or operator may designate the normal load based on the expected or projected manner of operating the unit. However, in either case, once four quarters of representative data become available, the historical load analysis shall be repeated.

  - (d) *Determination of normal load (or operating level)* Based on the analysis of the historical load data described in paragraph (c) of this section, the owner or operator shall, for units that produce electrical or thermal output, designate the most frequently used load level as the normal load level for the unit (or combination of units, for common stacks). The owner or operator may also designate the second most frequently used load level as an additional normal load level for the unit or stack. **For peaking units, normal load designations are unnecessary; the entire operating load range shall be considered normal.** If the manner of operation of the unit changes significantly, such that the designated normal load(s) or the two most frequently used load levels change, the owner or operator shall repeat the

historical load analysis and shall redesignate the normal load(s) and the two most frequently used load levels, as appropriate. A minimum of two representative quarters of historical load data are required to document that a change in the manner of unit operation has occurred. Update the electronic monitoring plan whenever the normal load level(s) and the two most frequently-used load levels are redesignated.

Note: The normal load determination described in section 6.5.2.1 is not required annually, but it is good practice prior to the annual RATA to review the load data from the past year to see whether there has been any significant change in the manner of unit operation. Anomalous load data (e.g., lower than normal loads due to mechanical problems with the unit) should be disregarded in the annual review.

- **Reporting the Results of the Historical Load Data Analysis – RT 536.** EDR record type 536 is important because it represents the range of operation of the unit and (for non-peaking units) defines the normal load level(s). The following are important excerpts from the EDR Instructions, for column 27 of RT 536 ("Activation Date"):

  - **Activation Date (27).** Report the year, month and day of the historical load data analysis (see sections 6.5.2.1 (c) and (d) of Appendix A) that defines the range of operation, the two most frequently-used load levels and the normal load level(s). There is one exception to this: for the initial load analysis at a particular unit or stack, report the activation date as the first day of the quarter in which the data analysis is performed (i.e., Jan 1, Apr 1, July 1 or Oct 1, as applicable), rather than the actual date of the analysis, unless the two dates are the same.

  - Once the operating range and normal load level(s) have been established, Part 75 does not require you to repeat the historical load analysis unless a significant change in the manner of unit operation occurs, which may result in a re-designation of the operating range and/or the normal load level(s) and/or the two most frequently-used load levels. At least two quarters of representative data are required to document that such a change in unit operation has occurred.

  - If, however, you elect to repeat the load analysis periodically, e.g., prior to each annual RATA, in order to confirm that nothing has changed (even though this is not required by the regulation), do not change the activation date unless the new data analysis shows that a re-designation of the operating range and/or the normal load and/or the

two most frequently-used load levels is necessary. **For peaking units, leave this field blank**

8. Stack Flow-to-Load Ratio or Gross Heat Rate Test

The following are general guidelines for reporting the results of the quarterly stack flow-to-load ratio or gross heat rate test described in section 2.2.5 of Part 75, Appendix B. However, this test is generally inapplicable to combustion turbines, which seldom, if ever have stack flow monitors.

- For each primary and each redundant backup flow monitoring system, an evaluation of the flow-to-load ratio or the gross heat rate (GHR) is required in each QA operating quarter. Only flow rate data actually reported to EPA are to be included in the data evaluation.

- Report RT 605 and RT 606 for each flow-to-load ratio test. RT 605 is used to report the current value of the reference flow-to-load ratio (Rref) or the reference gross heat rate ((GHR)ref), derived from the results of the most recent normal load flow RATA. Summarize the results of the quarterly flow-to-load ratio or gross heat rate quality assurance test in RT 606.

- When two load levels are designated as normal in RT 536, derive a separate reference flow-to-load ratio or GHR value for each normal load level, and report the appropriate RT(s) 605 as described in the instructions for RT 606.

- For a non-QA operating quarter, do not report RT 605 or RT 606. Instead, report RT 698 to claim an exemption from the flow-to-load ratio test for that quarter.

9. Fuel Flow-to-Load Ratio or Gross Heat Rate Test

If you elect to extend the deadline for your fuel flowmeter accuracy tests by using the optional fuel flow-to-load ratio or gross heat rate (GHR) test described in section 2.1.7 of Part 75, Appendix D, you must first quality-assure the flowmeter. For orifice, nozzle and venturi-type flowmeters that are certified by design, you must perform a complete QA sequence, i.e., transmitter calibration and visual inspection of the primary element. For all other flowmeters, an accuracy test must be performed.

After completing the QA test (or sequence), begin collecting the “baseline” data for the flow-to-load or GHR test. A minimum of 168 hours of baseline data is required. Once you have collected the baseline data, begin performing the fuel flow-to-load or GHR test each quarter. You may claim a one quarter extension of the projected deadline for the next accuracy test for each quarter of baseline data collection and for each subsequent quarter in which you perform and pass the flow-to-load or GHR test.

EDR record type 696 is used to claim these deadline extensions. The maximum allowable extension of the accuracy test deadline is 20 calendar quarters from the quarter of the last test or complete QA sequence. Report the fuel flow-to-load ratio or GHR test results in RTs 629 and 630. Note the following:

- Report RT 629 and its companion RT 630 for each unit operating quarter. For a non-operating quarter, do not report RTs 629 and 630, but you must still make a RT 696 deadline extension claim. Submit this non-operating quarter claim in the EDR for the quarter in which the unit resumes operation.

- Report RT 629 for each fuel flowmeter system that will be quality-assured using the baseline data. If a system contains more than one fuel flowmeter component (e.g., the main fuel flowmeter component and a return meter component or multiple fuel flowmeters feeding a single unit), you must submit a separate RT 630 for each flowmeter in the system, applying the result of the system fuel flow-to-load ratio test to each component.

- See Questions 25.17 through 25.20 in the Part 75 Emissions Monitoring Policy Manual for further guidance.

10. Annual Span & Range Evaluation (and Span Adjustment)

Section 2 in Appendix A of Part 75 requires an annual evaluation of the span and range of all CEMS. The purpose of this evaluation is to ensure that properly-sized measurement scales are being used to record the emissions data. The guidelines for evaluating the span and range values are found in section 2.1 of Appendix A, which requires that the majority of the data should (to the extent practicable) fall between 20 and 80% of the full-scale range. Note that there are certain exceptions to this general guideline, and these are itemized in section 2.1. Question 10.33 in the Part 75 Emissions Monitoring Policy Manual gives a detailed description of how to perform the annual span and range evaluation.

- **Appendix A, section 2.1--- Instrument Span and Range**

  - In implementing sections 2.1.1 through 2.1.6 of this appendix, set the measurement range for each parameter (SO2, NOx,, CO2, O2, or flow rate) high enough to prevent full-scale exceedances from occurring, yet low enough to ensure good measurement accuracy and to maintain a high signal-to-noise ratio. To meet these objectives, select the range such that the majority of the readings obtained during typical unit operation are kept, to the extent practicable, between 20.0 and 80.0 percent of the full-scale range of the instrument. **These guidelines do not apply to:** (1) SO2 readings obtained during the combustion of very low sulfur fuel (as defined in § 72.2 of this chapter); (2) SO2 or NOx

readings recorded on the high measurement range, for units with SO2 or NOx emission controls and two span values, unless the emission controls are operated seasonally (for example, only during the ozone season); or (3) SO2 or NOx readings less than 20.0 percent of full-scale on the low measurement range for a dual span unit, provided that the maximum expected concentration (MEC), low-scale span value, and low-scale range settings have been determined according to sections 2.1.1.2, 2.1.1.4(a), (b), and (g) of this appendix (for SO2), or according to sections 2.1.2.2, 2.1.2.4(a) and (f) of this appendix (for NOx).

Occasionally, the results of a span and range evaluation show that an adjustment to the span and range is necessary. For NOx, section 2.1.2.5 of Part 75, Appendix A explains what to do in such cases. A reasonable amount of time is provided to make the span and range adjustments, order new calibration gases, and perform the follow-up diagnostic testing.

Paragraph (b) of section 2.1.2.5 gives guidance for reporting emissions data and for adjusting the span and range when "over-scaling" occurs. However, these guidelines are rather general and CAMD has supplemented them with policy guidance (see Questions 10.27 and 10.38 in the Part 75 Emissions Monitoring Policy Manual).

Finally, note that for NOx monitors, when Part 75 requires a dual range (see Appendix A, sections 2.1.2.2 and 2.1.2.4), you may opt to monitor using only a low-scale measurement range and report a "default high range value" of 200% of the maximum potential concentration (MPC) whenever the NOx readings go off the low scale. This option is described in section 2.1.2.4(e) of Part 75, Appendix A, and is supplemented with policy in Question 10.29 of the Part 75 Emissions Monitoring Policy Manual.

- **Appendix A, section 2.1.2.5, introductory text and paragraphs (a) and (b)**

2.1.2.5 Adjustment of Span and Range

- For each affected unit or common stack, the owner or operator shall make a periodic evaluation of the MPC, MEC, span, and range values for each NOx monitor (at a minimum, an annual evaluation is required) and shall make any necessary span and range adjustments, with corresponding monitoring plan updates, as described in paragraphs (a) and (b), of this section. Span and range adjustments may be required, for example, as a result of changes in the fuel supply, changes in the manner of operation of the unit, or installation or removal of emission controls. In implementing the provisions in paragraphs (a), (b), and (c) of this section, note that NOx data recorded during short-term, non-

representative operating conditions (e.g., a trial burn of a different type of fuel) shall be excluded from consideration. The owner or operator shall keep the results of the most recent span and range evaluation on-site, in a format suitable for inspection. Make each required span or range adjustment no later than 45 days after the end of the quarter in which the need to adjust the span or range is identified, except that up to 90 days after the end of that quarter may be taken to implement a span adjustment if the calibration gases currently being used for daily calibration error tests and linearity checks are unsuitable for use with the new span value.

- (a) If the fuel supply, emission controls, or other process parameters change such that the maximum expected concentration or the maximum potential concentration changes significantly, adjust the NOx pollutant concentration span(s) and (if necessary) monitor range(s) to assure the continued accuracy of the monitoring system. A "significant" change in the MPC or MEC means that the guidelines in section 2.1 of this appendix can no longer be met, as determined by either a periodic evaluation by the owner or operator or from the results of an audit by the Administrator. The owner or operator should evaluate whether any planned changes in operation of the unit or stack may affect the concentration of emissions being emitted from the unit and should plan any necessary span and range changes needed to account for these changes, so that they are made in as timely a manner as practicable to coordinate with the operational changes. An example of a change that may require a span and range adjustment is the installation of low-NOx burner technology on a previously uncontrolled unit. Determine the adjusted span(s) using the procedures in section 2.1.2.3 or 2.1.2.4 of this appendix (as applicable). Select the full-scale range(s) of the instrument to be greater than or equal to the adjusted span value(s) and to be consistent with the guidelines of section 2.1 of this appendix.

- (b) Whenever a full-scale range is exceeded during a quarter and the exceedance is not caused by a monitor out-of-control period, proceed as follows: (1) For exceedances of the high range, report 200.0 percent of the current full-scale range as the hourly NOx concentration for each hour of the full-scale exceedance and make appropriate adjustments to the MPC, span, and range to prevent future full-scale exceedances. (2) For units with two NOx spans and ranges, if the low range is exceeded, no further action is required, provided that the high range is available and is not out-of-control or out-of-service for any reason. However, if the high range is not able to provide quality assured data at the time of the low range exceedance or at any time during the continuation of the exceedance, report the MPC as the NOx

concentration until the readings return to the low range or until the high range is able to provide quality assured data (unless the reason that the high-scale range is not able to provide quality assured data is because the high-scale range has been exceeded; if the high-scale range is exceeded, follow the procedures in paragraph (b)(1) of this section).

11. Maximum Potential Concentration

For NOx, section 2.1.2.1 of Part 75, Appendix A explains how to determine the maximum potential concentration (MPC). There are 5 ways of determining the MPC for oil and gas-fired units : (1) use a fuel-specific default value of 400 ppm; or (2) use a fuel- and unit-specific default value from Table 2-2 in section 2.1.2.1---for a CT that burns only natural gas, this value is 150 ppm and for a CT that burns oil it is 200 ppm; or (3) use NOx emission test results (test guidelines are given); or (4) use 720 hours or more of historical CEM data, representing a variety of operating conditions; or (5) obtain a reliable estimate of uncontrolled emissions from the manufacturer of the unit.

Obviously, option (4) cannot be used for the initial MPC determination for a new unit or for a unit that has not previously been required to monitor NOx emissions. However, as time goes on and CEM data are accumulated, these data may justify changing the MPC. The required annual span and range evaluation provides an opportunity for this type of assessment.

The MPC is important because it is used to set the span value of the monitor (span value = 1.00 to 1.25 times the MPC), and the concentrations of the calibration gases that are used for daily calibrations and linearity checks are expressed as percentages of the span value. Also, the MPC is used to calculate the “maximum potential NOx emission rate “(MER), which is occasionally needed for missing data substitution. Section 2.1.2.1 (b) of Part 75, Appendix A explains how to calculate the MER.

12. Monitoring Plan

A Part 75 monitoring plan consists of two pieces: (1) electronic; and (2) hard copy (see 75.53). The electronic piece (described in the bulleted items below) is submitted in EDR format. It contains essential information about the unit and the monitoring methodologies selected. The hard copy piece includes other information that is incompatible with electronic reporting (e.g., blueprints, schematics, data flow diagrams, test protocols, technical justifications, miscellaneous special documentation).

- Facility Information:

  - Location and Identification Information (RT 102) - ORIS Code, Plant Name, location, facility IDs, primary SIC code for the plant, and description of the type of facility.

- Unit Information

  - Unit Information (RT 504) - Unit ID, Unit type, maximum hourly heat input, first commercial operation date, and air quality modeling information.
  - Program indicators (RT 505) – submit one RT 505 for each program for each unit that the unit is subjected.
  - EIA Cross Reference Information (RT 506) – EIA information
  - Capacity Factor or Fuel Usage Data to Qualify as a Peaking Unit or Acid Rain Program Gas-fired Unit (RT 507) if necessary.
  - Monitoring Methodology Information (RT 585) - Submit one or more RTs 585 for each unit to define the monitoring approaches used to measure or estimate emissions.
  - Control Equipment Information (RT 586)- Report one or more RTs 586 to define the types of SO2, NOx, and particulate control equipment in place or planned for each unit.
  - Unit Fuel Type (RT 587) - Submit RT 587 for each type of fuel burned at each unit.

- Stack information:

  - Stack/Pipe Header Definition Table (RT 503) - This record type is only required if you measure emissions from (or supply fuel to) a unit in more than one location or in a location shared by more than one unit (e.g., a common stack).

- Monitoring Information:

  - Monitoring Systems (RT 510) - Monitoring systems are comprised of the actual, physical components that are installed or will be installed for a unit, pipe or stack where the measurement equipment is installed.
  - Formula Table (RT 520) - Provide the formulas that will be used to calculate required data from primary monitoring systems defined in RT 510
  - Span Table (RT 530) – Provide information on the span and range values associated with the continuous emission monitors installed a unit or stack and the time period in which these values are effective.

- Maximums, Minimums, Defaults, and Constants – Provide various maximum values, minimum values, defaults and constants which are used in the Part 75 emissions and heat input calculations or in the missing data routines.
- Unit and Stack Operating Load Data (RT 535) – Submit one RT 535 for each unit ID, common stack ID, multiple stack ID, common pipe ID and multiple pipe ID at which load-based missing data procedures are applied (whether for stack flow rate, NOx emission rate, NOx concentration or fuel flow rate).
- Range of Operation and, Normal Operating Load, or Level (RT 536) - Submit RT 536 in each quarterly report for each unit, multiple stack or common stack with installed CEMS.
- Program specific Electronic Compliance Certification Records including the RT 900, 901, 910, 920, 940, 941,
- Contact Person Information RT 999 (optional) Being replaced by CAMD Business Systems for e-mail.

- Updating the Monitoring Plan

  - The monitoring plan is normally updated electronically at the time of the quarterly EDR submission (and a hardcopy mailed to the state or local agency if required) unless there is deadline that occurs prior to a submission period (e.g., a recertification application deadline), then the monitoring plan can be submitted either:

    - ✓ By e-mailing the electronic copy to MP-RegX@epa.gov, where X is the EPA region, and mailing a hardcopy to the state or local agency (if changes were made to the hard copy information); or
    - ✓ By sending the electronic version, using MDC-FTP which can be downloaded at :

      http://www.epa.gov/airmarkets/monitoring/mdc/

      and mailing a hardcopy to the state or local agency (if changes were made to the hard copy information);

13. Monitor Availability

Part 75 requires substitute data to be reported whenever quality-assured data from a monitoring system are not obtained. Following the initial certification of a NOx CEMS, the "initial" missing data routines in 75.31 are used to provide substitute data values until 2,160 hours of quality-assured hours of NOx emission data have been collected. At that point, the "standard" missing data routines in 75.33 begin to be applied. The standard missing data routines are a series of mathematical algorithms that provide substitute data values, based on two principal criteria: (1) the length of the

missing data period; and (2) the percent monitor data availability (PMA) at the time of the missing data incident (see Table 2 in section 75.33). The PMA is the ratio of the number of quality-assured hours of data collected to the number of unit operating hours, over a specified lookback period (see Equations 8 and 9 in section 75.32). The PMA begins to be calculated within the DAHS from the hour of initial certification of the CEMS, but is not used for anything until the standard missing data routines begin to be applied.

Generally speaking, as the length of the missing data period increases and the PMA decreases, the substitute data values become increasingly conservative (i.e., conservatively high). When the PMA drops below 80.0%, the maximum potential NOx emission rate must be reported.

14. QA/QC Plans

- The requirements of the QA/QC plan are listed in section 1 of Appendix B of Part 75.
- EPA recommends that the following additional information be included:
  - Such information as to allow any maintenance or downtime event to be reconstructed. This should include, but not be limited to, the date and time the monitors failed or were taken out-of-service, the name or initials of the person performing the repair, maintenance, or QA test, what parts were replaced or procedures performed, and when the monitor was returned to service.
  - Such information as to allow any missing data to be correlated to the substitute data reported in the EDR.

15. Data Validation---Minute, Quadrant, and Hour

- **Section 75.10(d)(1)**
  - The owner or operator shall ensure that each continuous emission monitoring system is capable of completing a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-min interval. The owner or operator shall reduce all SO2 concentrations, volumetric flow, SO2 mass emissions, CO2 concentration, O2 concentration, CO2 mass emissions (if applicable), NOx concentration, and NOx emission rate data collected by the monitors to hourly averages. Hourly averages shall be computed using at least one data point in each fifteen minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly average may be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one

quadrant of an hour) if data are unavailable as a result of the performance of calibration, quality assurance, or preventive maintenance activities pursuant to § 75.21 and appendix B of this part, or backups of data from the data acquisition and handling system, or recertification, pursuant to § 75.20. The owner or operator shall use all valid measurements or data points collected during an hour to calculate the hourly averages. All data points collected during an hour shall be, to the extent practicable, evenly spaced over the hour.

- There is no definition of a valid minute for the CEMS, rather the rule refers to data points. The instrumental reference methods that are used for the RATAs require minute data (see 40 CFR 60, Appendix A, Methods 3A, 6C, and 7E).

- A valid quadrant has a valid data point. Not necessarily a 1-minute average, although most DAHS configurations are set up using a 1-minute average as the fundamental data averaging period.
- A valid hour may be only two data points (not necessarily averages) 15 minutes apart, if performance of calibration, quality assurance, or preventive maintenance activities, or backups of data from the data acquisition and handling system, or recertification occurs in that hour.

16. What is expected during a Part 75 audit ?

- See Field Audit Manual on posted CAMD website.